Air Quality Permitting
Technical Analysis

April 9, 2003

Tier II Operating Permit No. T2-020506
Koch Materials Company, Idaho Falls
AIRS Facility No. 019-00036

Prepared by:

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Division of Technical Services

FINAL PERMIT

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
ft.	foot
HAPs	Hazardous Air Pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
MACT	Maximum Available Control Technology
MMBtu	million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
Rules	*Rules for the Control of Air Pollution in Idaho*
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	tons per year
VOC	volatile organic compound

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Section 404.04, *Rules for the Control of Air Pollution in Idaho* for Tier II operating permits.

PROJECT DESCRIPTION

The purpose of this Tier II operating permit is to renew the Tier II operating permit that expired on June 9, 2002, and to update the permit to more accurately reflect current operations. The emissions sources of the facility consist of eight heated tanks used to store asphalt concrete and asphalt emulsion:

Tank No. 4 - 16,500 gallon capacity, Diameter - 10 ft., Height - 28 ft.
Tank No. 6 - 47,001 gallon capacity, Diameter - 20 ft., Height - 20 ft.
Tank No. 7 - 47,001 gallon capacity, Diameter - 20 ft., Height - 20 ft.
Tank No. 8 - 56,402 gallon capacity, Diameter - 20 ft., Height - 24 ft.
Tank No. 10 - 424,500 gallon capacity, Diameter - 42.5 ft., Height - 40 ft.
Tank No. 11 - 40,304 gallon capacity, Diameter - 14 ft., Height - 35 ft.
Tank No. 12 - 29,611 gallon capacity, Diameter - 12 ft., Height - 35 ft.
Tank No. 20 - 1,055,000 gallon capacity, Diameter - 67 ft., Height - 40 ft.

The following tanks also exist at the facility, but the facility did not provide emissions estimates or specify which petroleum products or chemicals will be stored in them in their application. Consequently the facility is not permitted to store anything other than asphalt cement and asphalt emulsion in these tanks. The facility was contacted to discuss the lack of information in the application. Rather than supply the information, the facility negotiated to include the following statement in the permit: "Storage of any other chemicals or petroleum products, including cutback asphalt, diesel fuel, and hydrochloric acid on-site shall qualify and comply with the permit to construct requirements or exemption requirements of IDAPA 58.01.01.201." The tanks for which no information was provided are:

Tank No. 14 - 7,600 gallon capacity, Diameter - 9 ft., Height - 16 ft.
Tank No. 15 - 9,400 gallon capacity, Diameter - 10.3 ft., Height – 15 ft.
Tank No. 16 - 6,300 gallon capacity, Diameter - 10.8 ft., Height – 9.2 ft.
Tank No. S-1 - 20,300 gallon capacity, Diameter - 12 ft., Height – 24 ft.
Tank No. S-2 - 12,700 gallon capacity, Diameter - 12 ft., Height – 15 ft.

In addition to the tanks one Cleaver-Brooks (6.3 MMBtu/hr) natural gas fired boiler is located at the facility.

The following emissions units were previously permitted to operate at the facility but have been removed from the site and are no longer permitted to operate at the facility.

Hot Oil Heater - Cleaver-Brooks 6.25 MMBtu/hr
Tank No. 1 - 18,013 gallon capacity
Tank No. 5 - 19,905 gallon capacity
Tank No. 13 - 29,611 gallon capacity
Tank No. 17 - 7,344 gallon capacity

FACILITY DESCRIPTION

Koch's Idaho Falls terminal stores and distributes asphalt cement and asphalt emulsions. Asphalt cement, which is a thick and slow-moving binding/sealing material removed from crude oil, is first received via railroad and truck. Asphalt emulsion is asphalt cement combined with water. This asphalt cement and asphalt emulsion is stored in a number of heated, fixed-roof storage tanks. Both products are loaded through truck loading racks for delivery.

The facility is currently not operating and Koch's future use of the site is pending.

SUMMARY OF EVENTS

June 7, 2002	DEQ received Koch's application for Tier II operating permit renewal.
August 14, 2002	DEQ determined Koch's Tier II application complete.
January 14, 2002	DEQ issued a facility draft Tier II permit for facility review.
January 30, 2003	DEQ received Koch's comments to the facility draft for Tier II permit.

PERMIT HISTORY

The following is a summary of the permit history:

June 9, 1997 Tier II operating permit issued to Koch Materials.

June 9, 2002 Tier II operating permit expired.

TECHNICAL ANALYSIS

Emissions Estimates

The applicant provided emissions estimates for storage and transfer of asphalt concrete and asphalt emulsion in eight fixed-roof storage tanks. No other chemicals or petroleum products were proposed to be stored in the tanks. Emissions estimates were also provided for the 6.3 MMBtu/hr natural gas fired Cleaver-Brooks boiler and fugitive particulate matter emissions from a 0.2 mile unpaved road and a 0.25 mile paved road.

The applicant's emissions estimates were accepted as presented in the application for the natural gas fired boiler and for the paved and unpaved roads. These emissions estimate calculations can be found in the June 7, 2002, application and are not repeated as part of this technical analysis. Note that the emissions inventory summary at the end of this section does include the boiler and road emissions estimates.

Volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions estimates were made using EPA's TANKS 4.0 computer program and EPA's AP-42. Emissions estimate calculations are included in Appendix A with references noted.

The application included only asphalt cement and asphalt emulsion as products that the facility would store and transfer. Vapor pressures for asphalt cement was manually calculated using Antoine's equation as described by AP-42 Chapter 11.1 and is shown in Appendix A. Since site specific values for Antoine's constants were not known for estimating vapor pressure, the values presented in AP-42 Chapter 11.1 for an average asphalt cement were used. The vapor pressure calculated using this equation was then used in EPA's TANKS 4.0 computer program to estimate VOC emissions.

Several assumptions were made when establishing emissions limits and throughput restrictions. One assumption, based on AP-42 Chapter 11.1, was that vapor pressure calculated for average asphalt cement represents the vapor pressure of any grade of asphalt cement stored in the tanks. Therefore the vapor pressures calculated using the AP-42 methodology are assumed to reasonably estimate the vapor pressure in the Koch tanks, and therefore estimate the average annual VOC emissions from any asphalt cement stored in the tanks. The second assumption for permitting purposes was that the average bulk liquid temperature for asphalt cement was equal to the maximum temperature that the applicant listed that asphalt cement would be stored at. This temperature is 375 °F. This conservative assumption was made so that the permit would not have to limit the average and maximum temperatures at which the asphalt concrete is stored. Consistent with AP-42's recommendation, a vapor molecular weight of 105 grams per gram mole was chosen to represent all asphalt cements. It should be made clear that in this discussion that asphalt cement refers to material that would be classified on a material safety data sheet as 100% asphalt cement or material whose main constituents are bitumens that occur naturally or as a residue of petroleum refining. Cutback asphalt is a distinctly different material from asphalt cement and should not be confused with asphalt cement.

Since asphalt emulsion is largely an asphalt cement and water mixture, for permitting, VOC, and HAP emissions estimation purposes, the emissions calculation methodologies for asphalt cement were assumed to also conservatively estimate emissions from asphalt emulsion storage and transfer. According to the application, asphalt emulsion will be stored at temperatures much less than 375 °F. For emissions inventory and permitting purposes it is assumed that asphalt emulsion may be stored at 375 °F solely so that no distinction is needed between asphalt cement and asphalt emulsion in the permit.

In estimating emissions from tank storage operations, one tank (tank No. 20) was assumed to be used to store all asphalt cement and asphalt emulsion because using this tank provided worst-case emissions estimates. Since it is assumed that all asphalt cement or asphalt emulsion is stored in the tank with worst-case emissions, it does not matter for permitting or compliance purposes what the throughput of each individual tank is.

In order for the facility to be permitted to store and transfer cutback asphalt, an emissions inventory and complete description of the physical and chemical properties of the types of cutback asphalt that would processed at the facility must be provided. Cutback asphalt is a generic term that usually means an asphalt cement that has been "cut" with fuel oil or other solvent. Physical properties of cutback asphalt and asphalt cement such as vapor pressure, vapor molecular weight, and boiling point can vary significantly. For instance, included in Koch's July 1995 Title V permit application is a material safety data sheet for cutback asphalt. This sheet gives the boiling point of cutback asphalt as 350 °F. This means that the vapor pressure of cutback asphalt at 350 °F is roughly equivalent to atmospheric pressure (14.7 pounds per square inch at sea level). As a comparison, the vapor pressure estimated for asphalt cement at 350 °F, obtained from AP-42 calculation methodologies, is 0.034 pounds per square inch. These vapor pressure differences only highlight the need to be specific in describing cutback asphalt since vapor pressure is a critical variable in estimating emissions. Koch's application did not document these differences or provide any emissions inventory for cutback asphalt. Consequently the use of cutback asphalt is not included in the Tier II operating permit.

Emissions resulting from the combustion of natural gas in the boiler were calculated at the maximum design capacity. No operating restrictions for the boiler are included in the permit. The potential to emit of the boiler is inherently limited by design capacity.

Table 6.1 EMISSIONS INVENTORY

Source	NO_x (T/yr)	SO_2 (T/yr)	CO (T/yr)	PM_{10} (T/yr)	VOC (T/yr)	HAP (T/yr)
Boiler 6.3 MMBtu/hr Natural Gas	2.63	0.016	2.21	0.2	Neg.	Neg.
Road Fugitives				6.3		
Asphalt Storage and Transfer					53.0	0.67

Neg. - Negligible

Modeling

Atmospheric dispersion modeling of facility-wide emissions was submitted to demonstrate that emissions from the facility would not cause or significantly contribute to a violation of an ambient air quality standard, as required by IDAPA 58.01.01.203.02.

DEQ has reviewed the analyses and supporting materials submitted, and has verified that operation of the facility, as specified in the permit, will satisfy the requirements of IDAPA 58.01.01.203.02. Appendix B contains a memorandum that discusses this review in detail.

Table 6.2 provides a summary of modeling results.

Table 6.2 MODELING RESULTS

Pollutant	Averaging Period	Significant Contribution ($\mu g/m^3$)	Modeled Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Background Plus Modeled Impact ($\mu g/m^3$)	Regulatory Limit ($\mu g/m^3$)
NO_2	Annual	1.0	6.47 (Highest)	32	38.47	100.0
SO2	24-hour	5.0	1.96 (2nd Highest)	26	27.96	365
	Annual	1.0	0.38 (Highest)	8	8.38	80
CO	1-hour	2000.0	138.0 (2nd Highest)	10,400	10,538.0	40,000
	8-hour	500.0	54.7 (2nd Highest)	3,400	3,454.7	10,000
PM_{10}	24-hour	5.0	2.75 (Highest)	81	83.75	150
	Annual	1.0	0.54 (Highest)	27	27.54	50

Area Classification

Koch Materials, Bonneville County, Idaho, is located in AQCR 061. The area is classified as attainment or unclassifiable for all other federal and state criteria air pollutants (i.e., Pb, PM_{10}, NO_x, SO_x, and VOCs).

Facility Classification

The facility is not a designated facility as defined in IDAPA 58.01.01.006.25. The facility is classified as an SM source because, as permitted, the potential emissions of any criteria pollutant are less than 100 tons per year (T/yr). However, the facility has the ability to store heated cutback asphalt and other chemicals and petroleum products. Without permit limitations on the types of products stored, including preventing the use of cutback asphalt, the facility's potential to emit is greater than 100 T/yr.

PERMIT REQUIREMENTS

Regulatory Review

This operating permit is subject to the following permitting requirements:

IDAPA 58.01.01.401 ..... Tier II Operating Permit
IDAPA 58.01.01.403 ..... Permit Requirements for Tier II Sources
IDAPA 58.01.01.404.01(c) ..... Opportunity for Public Comment
IDAPA 58.01.01.404.04 ..... Authority to Revise or Renew Operating Permits
IDAPA 58.01.01.406 ..... Obligation to Comply
IDAPA 58.01.01.470 ..... Permit Application Fees for Tier II Permits
IDAPA 58.01.01.625 ..... Visible Emission Limitation
IDAPA 58.01.01.650 ..... General Rules for the Control of Fugitive Dust

Facility-wide Conditions

Fugitive Particulate Matter - IDAPA 58.01.01.650-651

Requirement

Permit Condition 2.1 states that all reasonable precautions shall be taken to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.650-651.

Compliance Demonstration

Permit Condition 2.2 states that the permittee is required to monitor and maintain records of the frequency and the methods used by the facility to reasonably control fugitive particulate emissions. IDAPA 58.01.01.651 gives some examples of ways to reasonably control fugitive emissions which include using water or chemicals, applying dust suppressants, using control equipment, covering trucks, paving roads or parking areas, and removing materials from streets.

Permit Condition 2.3 requires that the permittee maintain a record of all fugitive dust complaints received. In addition, the permittee is required to take appropriate corrective action as expeditiously as practicable after a valid complaint is received. The permittee is also required to maintain records that include the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

Permit Condition 2.3 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid complaint or determining that fugitive particulate emissions are not being reasonably controlled meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

Control of Odors - IDAPA 58.01.01.775-776

Requirement

Permit Condition 2.4 and IDAPA 58.01.01.776 both state that: "*No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution.*" This condition is currently considered federally enforceable until such time it is removed from the SIP, at which time it will be a state-only enforceable requirement.

Compliance Demonstration

Permit Condition 2.5 requires the permittee to maintain records of all odor complaints received. If the complaint has merit, the permittee is required to take appropriate corrective action as expeditiously as practicable. The records are required to contain the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

Permit Condition 2.5 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid odor complaint meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

Visible Emissions - IDAPA 58.01.01.625

Requirement

IDAPA 58.01.01.625 and Permit Condition 2.6 state that *"(No) person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined . . ."* by IDAPA 58.01.01.625. This provision does not apply when the presence of uncombined water, NO_X, and/or chlorine gas is the only reason for the failure of the emission to comply with the requirements of this rule.

Compliance Demonstration

Emissions from the storage tanks are predominately VOCs, and visible emissions are not expected. Visible emissions from natural gas combustion will not approach 20% opacity. Therefore no periodic compliance assurance method is needed in the permit.

Excess Emissions – IDAPA 58.01.01.130-136

Requirement

Permit Condition 2.7 requires that the permittee comply with the requirements of IDAPA 58.01.01.130-136 for startup, shutdown, scheduled maintenance, safety measures, upset, and breakdowns. This section is fairly self-explanatory and no additional detail is necessary in this technical analysis. It should; however, be noted that subsections 133.02, 133.03, 134.04, and 134.05 are not specifically included in the permit as applicable requirements. These provisions of the *Rules* only apply if the permittee anticipates requesting consideration under subsection 131.02 of the *Rules* to allow DEQ to determine if an enforcement action to impose penalties is warranted. Section 131.01 states "*. . . The owner or operator of a facility or emissions unit generating excess emissions shall comply with Sections 131, 132, 133.01, 134.01, 134.02, 134.03, 135, and 136, as applicable. If the owner or operator anticipates requesting consideration under Subsection 131.02,*

then the owner or operator shall also comply with the applicable provisions of Subsections 133.02, 133.03, 134.04, and 134.05." Failure to prepare or file procedures pursuant to Sections 133.02 and 134.04 is not a violation of the *Rules* in and of itself, as stated in subsections 133.03.a and 134.06.b. Therefore, since the permittee has the option to follow the procedures in Subsections 133.02, 133.03, 134.04, and 134.05; and is not compelled to, the subsections are not considered applicable requirements for the purpose of this permit and are not included as such.

Compliance Demonstration

The compliance demonstration is contained within the text of Permit Condition 2.7. No further clarification is necessary here.

Open Burning – IDAPA 58.01.01.600-616

All open burning shall be done in accordance with IDAPA 58.01.01.600-616.

Reports and Certifications

All periodic reports and certifications required by the permit shall be submitted within 30 days of the end of each specified reporting period to the appropriate DEQ and EPA regional office.

Fuel-Burning Equipment – IDAPA 58.01.01.675

The facility burns natural gas in a 6.3 MMBtu/hr boiler. The estimated grain-loading emissions are calculated to be 0.0056 grains per dry standard cubic foot at 3% oxygen, which is substantially below the grain loading standard of 0.015 grains per dry standard cubic feet at 3% oxygen. Calculations can be seen in Appendix A. Compliance is assured without any limitations in the permit for the 6.3 MMBtu/hr natural gas fired boiler.

Fuel-Sulfur Content – IDAPA 58.01.01.725-729

Fuel sulfur content limitations were not included in the permit because according to the application neither distillate, residual fuel oil or coal is used on site as part of the planned operation of the stationary source.

NSPS – 40 CFR 60

NSPS applicability determinations for the tanks and boilers at the facility are documented in the May 9, 1997, technical memorandum that supports the issuance of the June 9, 1997, Tier II operating permit to Koch Materials. In that technical memorandum no emissions units where found to be subject to NSPS requirements, and Koch has not provided any information indicating that reconstruction or modification of any source has occurred since June 9, 1997.

NESHAPS – 40 CFR 61 and 63

There are no proposed or promulgated source-specific MACT standards for this facility and the facility is not a major source of Haps.

The April 2, 2002, proposed NESHAP for organic liquids distribution (non-gasoline) was reviewed. Applicability to this proposed NESHAP is contingent on meeting several criteria. One of the criteria that must be met is that the facility must be a major source of HAPs. Since Koch Materials in Idaho Falls is not a major source of HAPs, the proposed standards for organic liquids distribution (non-gasoline) do not affect the facility.

Storage Tanks and Loading Racks

Volatile Organic Compound Emissions Limits

Annual VOC emissions from asphalt concrete and asphalt emulsion storage and transfer at the facility are limited to 53 T/yr. Conservative emissions estimates of VOCs from storage tanks and loading racks were multiplied by a factor of 1.2 to obtain the 53-T/yr emissions limit. Methods used to calculate emissions can be seen in Appendix A.

Compliance Assurance

In estimating emissions from storage tanks and load-out operations at the Koch facility there are several key parameters. Three of the most critical are the type of material stored, the temperature at which the material is stored, and the amount of material processed. These three parameters are restricted in the permit.

Material Stored: The type of material permitted to be stored at the facility is asphalt cement and asphalt emulsion. The use of any other chemicals or petroleum products, including cutback asphalt and diesel fuel, shall qualify and comply with the permit to construct requirements or exemption requirements of IDAPA 58.01.01.201.

The vapor pressure and vapor molecular weight of cutback asphalt is too variable for DEQ to predict. This, coupled with the fact that the applicant did not provide emissions estimates or declare that it wished to store cutback asphalt, is the basis of the permit specifically prohibiting the storage or transfer of this material on site even though the previous permit allowed it.

The applicant was contacted by telephone to discuss missing emissions data for storage of various chemicals and petroleum products that were mentioned in the application. The applicant decided to accept the permit provision that specifies that "Use of any other chemicals or petroleum products, including cutback asphalt and diesel fuel onsite shall qualify and comply with the permit to construct requirements or exemption requirements of IDAPA 58.01.01.201" rather than calculate and supply emissions data to DEQ.

Temperature: The temperature at which material is stored directly affects the material's vapor pressure. The vapor pressure of materials has a significant impact on VOC emissions rates. Therefore, the temperature at which asphalt cement and asphalt emulsion is allowed to be stored is 375 °F. This temperature corresponds to the maximum temperature that the application stated either would be stored at. The permittee submitted information during the facility draft review period stating that the boler system design is inherently limited to around 366 °F at 150 pounds steam pressure. Maximum bulk liquid tank temperatures at the tank, based on the boiler design, would reach maximum temperatures of 310 °F. Temperature monitoring requirements are not necessary in the permit since the boiler design is not capable of exceeding the upper bound temperatures used in estimating emissions.

Throughput: For emissions estimation purposes, asphalt cement and asphalt emulsion were assumed to be identical. Because of this assumption, the permit limits the combined throughput of asphalt and asphalt emulsion to 572,917,306 gallons per any consecutive 12-month period.

Storage Tanks and Loading Racks

Hazardous Air Pollutants Emissions Limits

In limiting VOC emissions to 53.0 T/yr, HAP emissions are inherently limited to less than 1 T/yr. Because of this, no specific HAP limit is required or included in the permit.

Compliance Assurance

Since a direct relationship between VOC emissions and HAP emissions exists, no compliance assurance methods are needed for HAP emissions beyond those that are required to assure compliance with the VOC emission limits.

Emissions Limits Summary

Table 0.1 SUMMARY OF EMISSIONS LIMITS

Koch Materials, Idaho Falls Emission Limits[a] –Annual[b] (T/yr)		
Source Description	**VOC**	
	lb/hr	**T/yr**
Asphalt Concrete and Asphalt Emulsion Storage and Loadout	NA	53.0

[a] As determined by a pollutant-specific EPA reference method, a DEQ-approved alternative, or as determined by DEQ's emissions estimation methods used in this permit analysis.

[b] As determined by multiplying the actual or allowable (if actual is not available) pound per hour emission rate by the allowable hours per year that the processes may operate, or by actual annual production rates.

Compliance Review

The facility is currently not operating. DEQ's most recent source file record regarding compliance is dated October 14, 1998. At that time the facility was not operating.

AIRS INFORMATION

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP [c]	PSD [d]	NSPS [e] (Part 60)	NESHAP [f] (Part 61)	MACT [g] (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2 [h]	B	B					U
No_x [i]	B	B					U
CO [j]	B	B					U
PM_{10} [k]	B	B					U
PT (Particulate) [l]	B	B					U
VOC [m]	SM	SM					
THAP (Total HAPs) [n]	SM	SM					
			APPLICABLE SUBPART				

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:
- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

FEES

Fees apply to this facility in accordance with IDAPA 58.01.01.407. The facility is subject to permit processing fees for this revised Tier II operating permit of $10,000. This source is a synthetic minor facility. Appendix C contains an emission inventory that was used for fees calculation.

RECOMMENDATION

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue a final Tier II operating permit to Koch Materials. An opportunity for public comment on the air quality aspects was provided between February 21, 2003 and March 24, 2003 in accordance with IDAPA 58.01.01404.01.c. No comments were received.

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APPENDIX A

Calculations

Koch Materials, Idaho Falls

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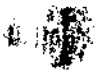
8/20/02

Tank Vapor Pressure

Example Calculation

Using Antoine's Equation in the Following form (AP-42 11.1-8, 12/00)



Log P = -0.05223A/T + B (P- mmHg, T- degrees K)

For Asphaltic concrete: (AP-42 11.1-8, 12/00)

A =	75350.06	Dimensionless
B =	9.00346	Dimensionless
T =	463.56	K

Then:P = 10^(-0.05223A/T+ B) =

3.26268 mmHg or equivalent to - 0.06309 psi

Temperatures and Vapor Pressure*

Minimum Liquid Temperature	240 F	Vapor Pressure (Min)	0.00145 psi
Maximum Liquid Temperature	375 F	Vapor Pressure (Max)	0.06309 psi
Average Liquid Temperature	[illegible]	Vapor Pressure (Ave)	[illegible]

* Vapor pressure is used in EPA AP-42, Tank 4.09b computer program for estimating tank emissions

Koch Materials, Idaho Falls

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Tank to Truck Loading Loss

Estimating volatile orgaince compound loading emissions using AP-42, 5.2-4 - 1/95

L = 12.46 SPM/T

L = loading loss, pounds per 1000 gallons of liquid loaded
S = Saturation factor (AP-42 table 5.2-1)
P = True vapor pressure of liquid loaded, psia calculated form (AP-42 11.1-8, 12/00
M = Molecular weight of vapors, lb/lb-mole
T = Temperature of bulk liquid loaded, R

Where:

S = 1.45 dimensionless (AP-42, 5.2-1)
P = 0.06309 psia
M = 129 lb/lb-mole
T = 375 F

Then:

L = 0.178096 lb/10^3 gallons

Total load out = 361,075,000 gallons per year

[redacted] = L x loadout = 63583.9094 lbs or [redacted]

Estimating Hazardous Pollutant emissions (From tanks and loading)
Using speciation profile given in (AP-42, Table 11.1-15)

Compound	Speciation* % weight	Emissions ton/yr
Benzene	0.032	0.0140
Bromomethane	0.0049	0.0021
2-Butanone	0.039	0.0171
Carbon Disulfide	0.016	0.0070
Chloroethane	0.004	0.0018
Cumene	0.023	0.0101
Ethylbenzene	ND*	
Formaldehyde	0.038	0.0166
n-Hexane	0.69	0.3022
Isooctane	0.1	0.0438
Methylene Chloride	0.00031	0.0001
MTBE	0.00027	0.0001
Styrene	ND	
Tetrachloroethene	0.0054	0.0024
Toluene	ND	
1,1,1-Trichloroethane	0.062	0.0272
Trichloroethene	ND	
Trichloroethene	ND	
Trichlorofluoromethane	ND	
m-/p-Xylene	0.2	0.0876
o-Xylene	0.057	0.0250
[redacted]	1.3	0.5570 [redacted]

* percent by weight of hazardous constituent present in VOC

[redacted]

Total VOC	=	Tank (T/yr)	+	load Out (T/yr)
	=	12	+	31.79195471
Total VOC	=	43.79195		

Permitted @ 120% of estimated = 53 Ton/yr

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8/27/02

Koch Materials, Idaho Falls

Permitted Hazardous Air Pollutant Emission Estimate From Tanks

Permitted VOC emissions = 53 ton/yr

HAP Speciation Profile for VOC emitted from asphalt storage tank breathing and unloading emissions (AP-42, Table 11.1-15)

Compound	Speciation % weight	Tanks ton/yr
Benzene	0.032	0.01696
Bromomethane	0.0049	0.00260
2-Butanone	0.039	0.02067
Carbon Disulfide	0.016	0.00848
Chloroethane	0.004	0.00212
Cumene	0.023	0.01219
Ethylbenzene	ND*	ND
Formaldehyde	0.038	0.02014
n-Hexane	0.69	0.36570
Isooctane	0.1	0.05300
Methylene Chloride	0.00031	0.00016
MTBE	0.00027	0.00014
Styrene	ND	ND
Tetrachloroethene	0.0054	0.00286
Toluene	ND	ND
1,1,1-Trichloroethane	0.062	0.03286
Trichlorethene	ND	ND
Trichloroethene	ND	ND
Trichlorofluoromethane	ND	ND
m-/p-Xylene	0.2	0.10600
o-Xylene	0.057	0.03021
[redacted]	1.3	0.67410

*Not detectable

Fuel Burning Equipment
Grain loading Compliance Assurance

Combustion Evaluation

Koch Materials, Idaho Falls

Fuel Data (% by weight)
Natural Gas

S	0.5
N2	5
C	70
H2	2
H20	0
O2	15

Fuel burned (lb/hr)	256
Excess air (%)	6
Stk temp (F)	100
Stk press (atm)	0.95

Combustion Air Required

	O2 lb.mole	N2 lb.mole
S	0.03	0.11
N2	0.00	0
C	16.81	63.24
H2	16.11	60.60
O2	-0.13	
	32.83	123.96

stioc. comb air = 173.84676 lb.mole/hr
stoic. dry comb air = 140.79946 lb.mole/hr

Flue Products

	lb.mole	lb/hr
SO2	0.03	1.94
N2	130.74	3660.79
CO2	16.81	739.68
H2O(comb)	32.46	584.30
O2	1.64	52.52
H2O(fuel)	0.00	0.00
dry	149.22	
wet	181.69	

Volume of flue gas (acfm)	1303.4
Volume of flue gas (sdcfm)	944.4
Volume of flue gas (dscfm@7%O2)	1336.6
Volume of flue gas (dscfm@15%O2)	3118.6
Volume of flue gas (dscfm@8%O2)	1439.4
Volume of flue gas (dscfm@3%O2)	1039.5
Volume of flue gas (dscfm@10%O2)	1701.1

$$\frac{.05\ \frac{lb}{hr}\left(7000\ \frac{gr}{lb}\right)}{1039.5\ \frac{ft^3}{min}\left(60\ \frac{min}{hr}\right)} = .0056\ \frac{gr}{dscf}\ @\ 3\%\ O_2$$

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
asphalt binder	20,260.33	3,006.50	23,266.83

2 12 tons

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Tank 20 375 F
City:	Idaho Falls
State:	Idaho
Company:	Koch
Type of Tank:	Vertical Fixed Roof Tank
Description:	Asphalt Concrete

Tank Dimensions

Shell Height (ft):	40.00
Diameter (ft):	67.00
Liquid Height (ft):	40.00
Avg. Liquid Height (ft):	20.00
Volume (gallons):	1,054,951.94
Turnovers:	521.35
Net Throughput (gal/yr):	572,917,306.00
Is Tank Heated (y/n):	Y

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft):	0.70
Slope (ft/ft) (Cone Roof):	0.06

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig):	0.00

Meteorological Data used in Emissions Calculations: Pocatello, Idaho (Avg Atmospheric Pressure = 12.53 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
asphalt binder	All	375.00	240.00	375.00	375.00	0.0831	0.0015	0.0831	105.0000			1,000.00	

APPENDIX B

Modeling

MEMORANDUM

To: Koch Materials, Idaho Falls Source File

THROUGH: Kevin Schilling, Air Quality Scientist, State Office of Technical Services

FROM: Dan Pitman, Senior Engineer, Technical Services

SUBJECT: Modeling Review for the Koch Materials Tier II application for a Boiler and Heated storage tanks in, Idaho Falls

DATE: November 26, 2002

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1. SUMMARY:

Koch Materials submitted an application to renew their expired Tier II operating permit for their facility located near Idaho Falls. Atmospheric dispersion modeling of facility-wide emissions were submitted to demonstrate that emissions from the facility would not cause or significantly contribute to a violation of an ambient air quality standard, as required by IDAPA 58.01.01.403.02.

The Idaho Department of Environmental Quality (DEQ) has reviewed the analyses and supporting materials submitted, and has verified that operation of the facility, as specified in the issued permit, will satisfy the requirements of IDAPA 58.01.01.403.02.

2. DISCUSSION:

This section describes the regulatory modeling requirements and the methodology used for the analyses conducted.

2.1 Introduction and Regulatory Requirements for Modeling

On June 7, 2002 DEQ received Koch's Application for Tier II Operating Permit Renewal. Per IDAPA 58.01.01.403.02, no Tier II Operating Permit can be granted unless the applicant demonstrates to the satisfaction of DEQ that emissions from the new source or modification "would not cause or significantly contribute to a violation of any ambient air quality standard." Emissions estimates and atmospheric dispersion modeling analyses were provided by Koch Material's consultants, Trinity Consultants.

2.2 Applicable Air Quality Impact Limits and Required Analyses

The Koch Materials facility is located in Bonneville County, designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}).

A full ambient impact analysis was conducted in this modeling assessment. A full impact analysis for attainment area pollutants requires inclusion of all criteria pollutant emissions at the facility in the ambient impact analysis. DEQ- approved background concentration values, appropriate for the facility's location for each pollutant and averaging time, are then added to the ambient impact results from the full impact modeling analyses. The resulting maximum ambient air concentration is then compared to National Ambient Air Quality Standards (NAAQS) listed in Table 2.1. Table 2.1 also specifies the modeled value that must be used for comparison to the NAAQS.

Table 2.1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Regulatory Limit[a] ($\mu g/m^3$)[b]	Modeled Value Used[c] ($\mu g/m^3$)[b]
Nitrogen dioxide (NO_2)	Annual	100[d]	6.47[e] (Highest)
Sulfur dioxide (SO_2)	3-hour	1,300[f]	6.02[e] (2nd Highest)
	24-hour	365[f]	1.96[e] (2nd Highest)
	Annual	80[d]	0.38[e] (Highest)
Carbon monoxide (CO)	1-hour	40,000[f]	138.0[e] (2nd Highest)
	8-hour	10,000[f]	54.7[e] (2nd Highest)
PM_{10}[g]	24-hour	150[f]	2.75[e] (Highest)
	Annual	50[d]	0.54[e] (Highest)

a. IDAPA 58.01.01.577
b. Micrograms per cubic meter
c. When using five years of meteorological data
d. Not to be exceeded
e. Concentration at any modeled receptor using five years of meteorological data
f. Not to be exceeded more than once per year
g. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

Toxic Air Pollutant (TAP) requirements for PTCs are specified in IDAPA 58.01.01.210. If the net emissions increase associated with a new source or modification exceeds screening emission levels of IDAPA 58.01.01.585 and IDAPA 58.01.01.586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of IDAPA 58.01.01.585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of IDAPA 58.01.01.586, then compliance with TAP requirements has been demonstrated. In accordance with IDAPA 58.01.01.07.006 the increase in toxic air pollutant emissions from an already operating or permitted source is not included in the calculation of the net emissions increase. Koch commenced construction or modification prior to July 1, 1995, therefore no Toxic Air Pollutant increment analysis is required.

2.3 Background Concentrations

DEQ has recently revised applicable background concentration values for the area near the facility. The PTC application submitted did not include revised background values. Table 2.2 lists the revised background concentrations.

Table 2.2 BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
Nitrogen dioxide (NO_2)	Annual	32
Sulfur dioxide (SO_2)	3-hour	42
	24-hour	26
	Annual	8
Carbon monoxide (CO)	1-hour	10,400
	8-hour	3,400
PM_{10}[b]	24-hour	81
	Annual	27
Lead (Pb)	Quarterly	0.03

a. Micrograms per cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

2.4 Modeling Impact Assessment

Table 2.3 provides a summary of the modeling parameters used for the DEQ analysis.

Table 2.3 MODELING PARAMETERS

Parameter	Description/Values	Documentation/Additional Description
Model	ISCST3	Version 02035
Meteorological data	Surface - Pocatello, Idaho Upper Air – Salt Lake City, Utah	1987 – 1991 Files: POC87_91.ASC
Model options	Regulatory Default	Allow missing met data
Land use	Rural	Low population density in area and large fraction of unimproved land
Terrain	Not considered	Area is relatively flat
Building downwash	Used building profile input program (BPIP)	Building dimensions obtained from modeling files submitted
Receptor grids (See Figure 1)	Grid 1	50 meter spacing along site boundary out to 250 meters
	Grid 2	Discrete receptors were clustered around 50 meter maximum concentrations. Receptors were placed within 10 meters of property boundary and within 10 meters along the property boundary
Facility location (UTM)[a]	Easting	414.6 kilometers
	Northing	4818.9 kilometers

[a] Universal Transverse Mercator

2.4.1 Modeling Protocol

A modeling protocol was not submitted to DEQ prior to the application.

2.4.2 Model Selection

The initial ambient air impact analysis was performed by Trinity Consultants using the model ISCST3. DEQ verification modeling was performed using ISCST3 – Version 02035.

2.4.3 Meteorological Data

Surface data from Pocatello, Idaho and upper air meteorological data from Salt Lake City, Utah, were used in the modeling analyses. These data were collected from 1987 through 1991. DEQ determined that these data are sufficient for use in determining that emissions from Koch Materials would not cause or significantly contribute to a violation of an ambient air quality standard (IDAPA 5.8.01.01.403.02).

2.4.4 Terrain Effects and Facility Layout

The Department's verification modeling analysis did not include terrain affects. Elevation in the area of the facility is essentially flat. Elevations between the point of predicted maximum impacts and the property boundary did not vary by more than five feet based on review of USGS 7.5 minute quadrangle map Idaho Falls North, 1948. DEQ also verified facility buildings and tanks on the site by comparing the modeling input to a facility plot plan submitted and aerial photographs of the area.

2.4.5 Receptors

DEQ verification modeling was conducted using the following grid of ambient air receptors:

- Receptors every 50 meters, extending out 250 meters from the stationary sources boundary.
- Discrete receptors were then clustered around the 50-meter receptors which showed maximum impacts, along the property boundary and within 10 meters of the property boundary.

2.4.6 Emission Rates

Emissions rates used in the dispersion modeling analysis submitted by the applicant were reviewed against those in the permit application and the emission limits in the draft permit. Where appropriate, revisions were made to ensure consistency between the modeling analyses and the permit. The following approach was used for DEQ verification modeling:

- All modeled emissions rates were equal to or greater than the net emissions increase calculated in the PTC application or the permitted allowable rate. The permitted allowable rate was used.
- Emissions release parameters (stack location, stack height, stack diameter, exhaust temperature, and exhaust velocity) used in the model were checked against those specified in the permit application. Stack flowrate was adjusted based on a combustion evaluation with exhaust gases at 100 degrees Fahrenheit, the flowrate was adjusted because the applicant assumed gas flow rates without any documentation supporting the flow rate or temperature provided in the application.
- Modeling results were compared to "significant contribution" thresholds. More extensive review of modeling parameters was conducted when model results approached applicable thresholds.

Table 2.4 provides emissions quantities for criteria pollutants.

Table 2.4 CRITERIA POLLUTANT EMISSIONS RATES USED FOR MODELING

Source (boiler)	Maximum Hourly Emissions Rate Increase[a] (lb/hr)[b]			
Pollutant	PM_{10}[c]	SO_2[d]	NO_x[e]	CO[f]
Boiler 6.3 MMBtu/hr	0.05	0.036	0.60	0.05

a. Emission rate used for 24-hour, 8-hr, 3-hr, and 1-hr averaging periods
b. Pounds per hour
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
d. Sulfur dioxide
e. Oxides of nitrogen
f. Carbon monoxide

Electronic copies of the modeling analysis are saved on disk. Table 2.5 provides a summary of the files used in the modeling analysis. The permitting engineer has reviewed this modeling memo to ensure consistency with the PTC and technical memorandum.

Table 2.5 DISPERSION MODELING FILES

Type of File	Description	File Name
Met data	1987 - 1991	Pocatello Met Data
BEEST input files	PM_{10}, SO_2, NOx	Koch2.BST
Each BST file has the following type of files associated with it:		
Input file for BPIP program		.PIP
BPIP output file		.TAB
Concise BPIP output file		.SUM
BEE-Line file containing direction specific building dimensions		.SO
ISCST3 input file for each pollutant		.DTA
ISCST3 output list file for each pollutant		.LST
User summary output file for each pollutant		.USF
Master graphics output file for each pollutant		.GRF

Table 2.6 provides a summary of modeling results.

Table 2.6 MODELING RESULTS

Pollutants	Averaging Periods	Significant Contributions ($\mu g/m^3$)	Modeled Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Background plus Modeled Impact ($\mu g/m^3$)	Regulatory Limit ($\mu g/m^3$)
Nitrogen dioxide (NO_2)	Annual	1.0	6.47 (Highest)	32	38.47	100.0
Sulfur dioxide (SO_2)	3-hour	25.0	6.02 (2nd Highest)	42	48.02	1,300
	24-hour	5.0	1.96 (2nd Highest)	26	27.96	365
	Annual	1.0	0.38 (Highest)	8	8.38	80
Carbon monoxide (CO)	1-hour	2000.0	138.0 (2nd Highest)	10,400	10,538.0	40,000
	8-hour	500.0	54.7 (2nd Highest)	3,400	3,454.7	10,000
PM_{10}	24-hour	5.0	2.75 (Highest)*	81	83.75	150
	Annual	1.0	0.54 (Highest)	27	27.54	50

*The sixth highest value is normally used when doing a full impact analysis. Since the highest value conservatively demonstrated compliance more precise model refinement is not needed to obtain the sixth highest value.

G:\TECHNICAL SERVICES\PROCESS ENGINEERING\PITMAN\T-2\KOCH MATERIALS -IF\FACILITY DRAFT\KOCH MODELING MEMO.DOC

*** ISCST3 - VERSION 02035 ***
*** Title One ***
*** Model Executed on 10/15/02 at 10:14:06 ***

BEE-Line ISCST3 "BEEST" Version 8.60

Input File - C:\BEEWORK\koch2_87_SO2.DTA
Output File - C:\BEEWORK\koch2_87_SO2.LST
Met File - C:\My Documents\Pocatello met data\POC87_91.ASC

Number of sources - 1
Number of source groups - 1
Number of receptors - 147

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
BOILER	0	0.45360E-02	414578.2	4818750.5	0.0	7.62	310.93	8.43	0.30	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	BOILER ,

*** THE SUMMARY OF MAXIMUM ANNUAL (5 YRS) RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.38633 AT (414598.03, 4818787.00, 0.00, 0.00)	DC	NA	
	2ND HIGHEST VALUE IS	0.37440 AT (414607.00, 4818792.00, 0.00, 0.00)	DC	NA	
	3RD HIGHEST VALUE IS	0.36604 AT (414604.03, 4818802.00, 0.00, 0.00)	DC	NA	
	4TH HIGHEST VALUE IS	0.36734 AT (414600.03, 4818779.00, 0.00, 0.00)	DC	NA	
	5TH HIGHEST VALUE IS	0.34245 AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA	
	6TH HIGHEST VALUE IS	0.32322 AT (414609.00, 4818780.00, 0.00, 0.00)	DC	NA	
	7TH HIGHEST VALUE IS	0.31685 AT (414603.03, 4818815.50, 0.00, 0.00)	DC	NA	
	8TH HIGHEST VALUE IS	0.30025 AT (414602.03, 4818768.00, 0.00, 0.00)	DC	NA	
	9TH HIGHEST VALUE IS	0.28360 AT (414632.59, 4818789.50, 0.00, 0.00)	GC	GRID_1	
	10TH HIGHEST VALUE IS	0.27014 AT (414582.59, 4818789.50, 0.00, 0.00)	GC	GRID_1	

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	7.52750	ON 91080303:	AT (414617.97, 4818704.00, 0.00, 0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	6.02363	ON 89053124:	AT (414582.59, 4818789.50, 0.00, 0.00)	GC	GRID_1

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1.98292	ON 90111024:	AT (414607.00, 4818792.00, 0.00, 0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	1.96434c	ON 88030324:	AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA

*** ISCST3 - VERSION 02035 ***
*** Title One ***
*** Model Executed on 10/11/02 at 10:40:19 ***

BEE-Line ISCST3 "BEEST" Version 8.60

Input File - C:\BEEWORK\koch2_87_CO.DTA
Output File - C:\BEEWORK\koch2_87_CO.LST
Met File - C:\My Documents\Pocatello met data\POC87_91.ASC

Number of sources - 1
Number of source groups - 1
Number of receptors - 147

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	BASE X (METERS)	Y (METERS)	ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
BOILER	0	0.63000E-01	414578.2	4818750.5	0.0	7.62	310.93	8.43	0.30	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	BOILER ,

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-I
ALL	HIGH 1ST HIGH VALUE IS	138.81654	ON 88072523:	AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	138.00760	ON 91070722:	AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-I
ALL	HIGH 1ST HIGH VALUE IS	63.55742	ON 89110508:	AT (414598.03, 4818787.00, 0.00, 0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	54.70571	ON 89080308:	AT (414598.03, 4818787.00, 0.00, 0.00)	DC	NA

*** ISCST3 - VERSION 02035 ***
*** Title One ***
*** Model Executed on 10/11/02 at 10:35:10 ***

BEE-Line ISCST3 "BEEST" Version 8.60

Input File - C:\BEEWORK\koch2_87_PART.DTA
Output File - C:\BEEWORK\koch2_87_PART.LST
Met File - C:\My Documents\Pocatello met data\POC87_91.ASC

Number of sources - 1
Number of source groups - 1
Number of receptors - 147

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
BOILER	0	0.63000E-02	414578.2	4818750.5	0.0	7.62	310.93	8.43	0.30	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	BOILER ,

*** THE SUMMARY OF MAXIMUM ANNUAL (5 YRS) RESULTS ***

** CONC OF PART IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.53935	AT (414598.03, 4818787.00, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.52000	AT (414607.00, 4818792.00, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.51116	AT (414604.03, 4818802.00, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.51019	AT (414600.03, 4818779.00, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.47562	AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.44891	AT (414609.00, 4818780.00, 0.00, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.44007	AT (414603.03, 4818815.50, 0.00, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.41701	AT (414602.03, 4818768.00, 0.00, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.39389	AT (414632.59, 4818789.50, 0.00, 0.00)	GC	GRID_1
	10TH HIGHEST VALUE IS	0.37519	AT (414582.59, 4818789.50, 0.00, 0.00)	GC	GRID_1

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PART IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	2.75406	ON 90111024:	AT (414607.00, 4818792.00, 0.00, 0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	2.72826c	ON 88030324:	AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA

*** ISCST3 - VERSION 02035 ***
*** Title One ***
*** Model Executed on 10/11/02 at 10:28:03 ***

BEE-Line ISCST3 "BEEST" Version 8.60

Input File - C:\BEEWORK\koch2_87_NOX.DTA
Output File - C:\BEEWORK\koch2_87_NOX.LST
Met File - C:\My Documents\Pocatello met data\POC87_91.ASC

Number of sources - 1
Number of source groups - 1
Number of receptors - 147

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	BASE ELEV. (METERS)	X (METERS)	Y (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
BOILER	0	0.75600E-01	414578.2	4818750.5	0.0	7.62	310.93	8.43	0.30	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	BOILER ,

*** THE SUMMARY OF MAXIMUM ANNUAL (5 YRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	6.47217 AT (414598.03, 4818787.00, 0.00, 0.00)	DC	NA	
	2ND HIGHEST VALUE IS	6.23996 AT (414607.00, 4818792.00, 0.00, 0.00)	DC	NA	
	3RD HIGHEST VALUE IS	6.13394 AT (414604.03, 4818802.00, 0.00, 0.00)	DC	NA	
	4TH HIGHEST VALUE IS	6.12233 AT (414600.03, 4818779.00, 0.00, 0.00)	DC	NA	
	5TH HIGHEST VALUE IS	5.70747 AT (414595.06, 4818800.00, 0.00, 0.00)	DC	NA	
	6TH HIGHEST VALUE IS	5.38695 AT (414609.00, 4818780.00, 0.00, 0.00)	DC	NA	
	7TH HIGHEST VALUE IS	5.28088 AT (414603.03, 4818815.50, 0.00, 0.00)	DC	NA	
	8TH HIGHEST VALUE IS	5.00409 AT (414602.03, 4818768.00, 0.00, 0.00)	DC	NA	
	9TH HIGHEST VALUE IS	4.72671 AT (414632.59, 4818789.50, 0.00, 0.00)	GC	GRID_1	
	10TH HIGHEST VALUE IS	4.50225 AT (414582.59, 4818789.50, 0.00, 0.00)	GC	GRID_1	

APPENDIX C

Fees

Tier II Fee Calculation

Company: Koch Materials Co.
Address: 2525 Lindsey Blvd.
City: Idaho Falls
State: Idaho
Zip Code: 83402
Facility Contact: Ron Mahan
Title: Area Manager
AIRS No.: 019-00036

N	Did this permit meet the requirements of IDAPA 58.01.01.407.02 for a fee exemption Y/N?
N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Is this a syntheric minor permit? Y/N

Emissions Inventory	Requested Emissions in T/yr
NO_X	2.6
PM10	0.2
PM	0.0
SO_2	0.0
CO	2.2
VOC	53.0
HAPS/TAPS	
Total:	58.1
Fee Due	$ 10,000.00

Comments: